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Forecasting the Academic Achievement of College Freshmen

By RUTH T. LEHMAN

STUDENTS who will achieve superior academic standing in their first quarter of residence in college and those who will be found at the opposite end of the scale differ, from the beginning of their college career, in certain important ways —other than psychological-test scores. This was the hypothesis set up to be tested with a class of 110 girls entering Ohio State University as Freshmen in home economics several years ago. If found to be true, it would have definite implications for guidance.

By means of a prediction index then in use, it had been forecast that 35 members of the class would receive very low marks at the end of their first quarter and that 28 of the group would receive high marks. Table I shows that, in the main, both groups lived up to these expectations. Less than 15 per cent of those for whom low marks had been predicted had a point-hour ratio as high as 2.50 on a scale where *A* gave four points per hour of credit, *B* three points, and so on. In fact, 40 per cent were below the dismissal level of 1.50 or had withdrawn or been marked "Incomplete." On the other hand, about two-thirds of those for whom high marks had been predicted had a point-hour of at least 2.50—and half of these a *B* average or higher—none were at dismissal level, and less than 15 per cent were below 2.00. The mean point-hour ratio of the low prediction group was 1.68; of the high, 2.68. Moreover, later records show that 69 per cent of the low group failed to graduate, while 64 per cent of the high group completed their programs.

The first-quarter standing of the two groups in the entire class of 110 also was significant. About two-thirds of all point-hour ratios below 2.00 were received by the girls for whom low marks were predicted; about the same proportion of all in

the 3.00–4.00 range went to those for whom high achievement was forecast.

The two groups differed also in ability to do college work as judged by psychological-test scores. The medium percentile score of the predicted low group was 29.0 on the Ohio State Psychological Examination; that of the high group, 86.5. This difference would be expected, however, since the test score was one of the factors in the prediction index.

TABLE I

FIRST-QUARTER MARKS OF STUDENTS FOR WHOM HIGH OR LOW MARKS WERE PREDICTED

POINT-HOUR RATIO	PERCENTAGE OF STUDENTS	
	Low Marks Predicted	High Marks Predicted
(1)	(2)	(3)
3.50–4.00	0	7.1
3.00–3.49	0	25.0
2.50–2.99	14.3	32.1
2.00–2.49	20.0	21.4
1.50–1.99	25.7	14.3
Below 1.50	34.3	0
No mark (Withdrawn or incomplete)	5.7	0

THE students in the group described were invited to a meeting at which the project was explained. The goal was to try out three types of evaluation instruments with a sample of the class and decide which, if any of them, should be recommended for routine use in the freshman orientation course for home-economics students. The amount of time required for this testing, the dates and hours set for it, and the nature of the follow-up conference were all outlined. As a result, about 80 per cent of the high and low groups (28 and 22, respectively) took all the tests.

The instruments used were in the areas of two tool subjects —reading and arithmetic—and in the field of student problems. While both reading and work with numbers are, of course, tested in the psychological examination, results do not indicate the types of difficulty a student has with them, and hence are not useful in remedial work. Therefore, special tests were used in these areas.

Ability to read rapidly and at a high level of comprehension

is important for success in college work. The instruments selected to sample the students' reading ability were the four Robinson-Hall Reading Tests.[1] They were chosen because they present material which is unfamiliar and—except for the piece of light fiction in one test—of college level. Also they demonstrate to the student that one reads different subject fields at different rates of speed. The three fields included in these tests are art, Russian history, and geology.

Some skill in the common arithmetical processes and in sensing the meaning of a problem situation is also important for success in such subjects as chemistry, which was, at the time of the study, a required freshman course in all home-economics curriculums. The instrument selected to test these abilities, the Reavis-Breslich Diagnostic Tests in the Fundamental Operations of Arithmetic and in Problem Solving,[2] was chosen because it easily identified not only the particular processes in which the student was weak but also the possession or lack of what might be called "problem sense."

The area of student problems was included because it was recognized that serious personal difficulties may cause a student to fall well below his potential level in school work. The instrument used was the Mooney Problem Check List.[3]

THE median percentile scores of the predicted low and high groups on the four types of reading material contained in the Robinson-Hall tests are given in Table II. The predicted high group was definitely superior in speed and comprehension in all four fields of reading. The speed medians differed quite consistently from 30 to 40 points. In comprehension, however, the two groups showed their greatest difference (38 points) in reading Russian history and geology. In reading easy fiction and the selection in art, they varied only 21 to 25 points.

In the arithmetic test, the groups were again rather sharply differentiated, even though a third of the predicted low group had been taking a refresher course in this subject. The range for the low group was 9–92, out of a possible 170 (raw score); and the median was 55. For the predicted high group, these figures were 64–121 and 84, respectively.

In marking the Problem Check List, students were in-

[1] Columbus, Ohio: Ohio State University Press, 1949.
[2] These tests are no longer available.
[3] New York: Psychological Corporation, 1950.

structed to underline each problem which was then troubling them and to circle the number preceding those which were of most concern to them. Table III shows how the predicted low and high groups compared. The total number of problems underlined by the former was more than twice that of the predicted high group, the variation within the group was greater, and the mean number was higher. Moreover, 42 per

TABLE II

MEDIAN PERCENTILE SCORES IN READING MADE BY GROUPS OF FRESHMEN FOR WHOM LOW AND HIGH MARKS WERE PREDICTED

FACTOR AND PREDICTION GROUP	MEDIAN PERCENTILE SCORE IN READING			
	Fiction	Art	Russian History	Geology
(1)	(2)	(3)	(4)	(5)
Speed				
Low group	37	23	46	30
High group	70	53	86	60
Comprehension				
Low group	52	30	35	34
High group	73	55	73	72

TABLE III

COMPARISON OF THE TWO GROUPS WHO MARKED THE MOONEY PROBLEM CHECK LIST

GROUP	PROBLEMS UNDERLINED			PROBLEMS CIRCLED		
	Total Number	Range	Mean	Total Number	Range	Mean
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Low	660	4–92	24	279	0–48	10
High	316	3–31	14	78	0–11	4

cent of the underlined statements of the predicted low group were also circled, while only 25 per cent were so checked by the high group as being of most concern to them. Discounting the fact that greater caution in revealing their problems may have been practiced by the latter, there would still seem to be a very real difference between the groups.

Responses of the same individual on the Problem Check List will differ somewhat from time to time. Thus, the fact that the instrument was used shortly before midterm examinations may explain why the area, "adjustment to college work," had the highest check in both groups. Problems in this area

were underlined 166 times by students in the low group, as compared with only 56 times by the others. The circlings indicated, too, that these problems were of much greater concern to the low group. This was true also in the next two high areas of both groups: social and recreational activities and personal-psychological relationships.

GROUP comparisons are interesting, but, after all, the teacher and counselor deal with individuals. Each person is different. What did the experimental program show about individuals? Two cases are used to demonstrate the potentialities of such test information in guidance.

Alice was in the predicted low group. Her O.S.P.E. rank was 11, indicating at the outset that her chances of being able to do college work were very slim. She read slowly—an average of less than 50 words a minute—and read all types of material at the same rate. In reading the piece of light fiction, art, and geology, her speed gave her a percentile rank of 1, as compared with other University Freshmen. In reading history, she was at the fifth percentile. In reading comprehension, she was as high as the 30th percentile in only one area, geology. In other words, she could not be expected to keep up with assignments at college level, nor would she understand much of what she was able to read. Interestingly enough, she said in conference that she had never liked to read; a sad state for one who was planning to take on four years of reading, for that was what college would mean.

In the arithmetic test, she made a score of 29 (or 17 per cent), as contrasted with her group's median of 55 (32 per cent). She was emotionally disturbed when taking the test, remarking that she was "afraid of arithmetic," "never was good in fractions"—believed that she multiplied when she should have added or subtracted—and that she didn't place decimals correctly in division. She made errors in most arithmetical processes, and was extremely slow, especially in answering the problem situations, whether given with or without numbers.

Her Problem Check List was one of the worst ones. She underlined 72 statements and circled 48 of them. Her highest checks were in adjustment to college, but three other areas were also high—personal-psychological relations, social-psychological relations, and social and recreational activities. A

glance at some of the circled items in these areas gives a better picture of how disturbed she really was:

Afraid to speak up in class discussions
Not smart enough in scholastic ways
Getting low grades
Fearing failure in college
Not having any fun

Too easily discouraged
Sometimes wishing I'd never been born
Afraid of making mistakes
Unhappy too much of the time
Wanting a more pleasant personality

Being left out of things
No real friends in college
Too little social life
Awkward in meeting people
Feelings too easily hurt

The cumulative effect of her checking is reflected in her summary comment at the end. "I feel lost in college," she wrote. "Sometimes I wonder what I'm doing here . . . I lack the making of a friend. . . . You never see the same person twice except the students in your classes."

It is not surprising, then, to find definite corroboration of this picture in scores on the Bernreuter Personality Inventory which she had taken routinely with other entering Freshmen in home economics. This test indicated she was rather dependent upon others socially, and extremely submissive, unstable, and lacking in self-confidence.

In conference she revealed that she had come to college in an attempt to attain status. She had been working in an office and had decided that "the only people there who were interesting—or who amounted to anything—were the ones who had gone to college." She wanted to become like them. But she was unhappy in her living arrangements, unattractive, and always alone as she walked from class to class. Thus, in addition to being low in general intellectual ability, she was beset by many problems, real or imaginary, and had little control over important study tools. To cap it all, she was employed in an office for five hours each evening. What chance did she have to succeed in college!

She was referred to a remedial psychology course. Then her load was lightened for the balance of the year and some

emphasis put on certain non-credit courses which would always be useful to her. She was also encouraged to think of her one year in college as a terminal but worth-while experience. Her point-hour ratio for the first quarter was 0.81. She left at the end of the year with a cumulative point-hour ratio of 1.75.

Jean, a member of the group predicted high, presents a real contrast to Alice. She was valedictorian of a high-school class of 105 and entered college with an O.S.P.E. percentile of 96. In the reading tests she stood among the best. In speed she was at the 80th percentile or higher in all four areas; in comprehension, at the 70th or above in all except the piece of easy fiction, where her rank was 40. (In conference later, she said she had skimmed that reading in order to try to finish the story.) Moreover, she read different materials at varying rates, one sign of a good reader. She averaged 113 words a minute in her reading of fiction, in the 90's in both art and history, and about 80 in geology. In the arithmetic test her score was 116, well above her group's median of 84.

On the Problem Check List, she underlined only seven statements and circled one. She had taken a similar test in high school and may have been test-wise. However, in conference her only major problem at the time seemed to be concerned with vocational choice and her abilities. Her Bernreuter scores described her as average in sociability, slightly dominant, and very stable and confident.

Jean, too, was employed, but on the campus and for only two hours a day. Apparently she did not work from necessity and her job did not handicap her in her studies. How well did she succeed in college? Her first-quarter point-hour ratio was 3.75. She finished with her class four years later with a cumulative point-hour ratio of 3.28.

These two cases were admittedly at the extremes in their psychological-test scores. Was it "stacking the cards" to use them for illustrative purposes? A study of Table IV would suggest not. The numbered students in this table are those in the predicted low group whose O.S.P.E. scores were in the 30's, or higher than the mean score for their group. The lettered cases from the high group included all whose O.S.P.E. was in the 70's and thus below the mean for this group.

Taking the students of the low group first, we find that, while they were frequently rapid readers, they were practically always below the median for college Freshmen so far as com-

TABLE IV

COMPARISON OF STUDENTS WITH O.S.P.E. PERCENTILE RANKS IN THE 30's AND 70's

O.S.P.E. Group	Percentile Rank in Reading*								Arithmetic Raw Score	Number of Problems		First Quarter Point-Hour Ratio
	Fiction		Art		Russian History		Geology			Underlined	Circled	
(1)	(2)		(3)		(4)		(5)		(6)	(7)	(8)	(9)
Percentile 30–39												
Student 1	90	1	80	40	70	40	70	40	75	18	4	2.18
Student 2	80	30	95	5	95	10	90	30	92	16	8	2.55
Student 3	50	30	80	10	95	70	70	20	71	12	3	2.05
Student 4	80	30	10	60	40	10	60	95	81	30	11	1.87
Student 5	30	30	30	10	50	1	50	5	45	10	6	2.11
Student 6	10	20	5	60	60	20	5	30	56	44	9	1.82
Student 7	40	30	10	40	50	60	40	10	53	64	37	1.37
Percentile 70–79												
Student A	50	99	50	95	90	95	60	99	85	23	11	3.35
Student B	50	70	80	50	90	20	70	70	78	10	0	1.82
Student C	90	30	90	20	80	50	80	10	103	3	0	2.31
Student D	20	50	1	50	30	95	1	70	121	22	6	1.88
Student E	70	70	70	30	90	70	80	20	105	17	9	2.72

* The first number in each column is the percentile in speed; the second, in comprehension.

prehension was concerned. They were not uniformly low in the arithmetic test—perhaps because some had been taking a refresher course in this subject—but only one of them approached the median of the high group. They did not have an excessive number of problems bothering them, but those who made the lowest first-quarter marks had the larger number, in addition to having difficulty in reading and arithmetic.

Looking next at the lettered students from the high group, we find that in reading they were in most cases above the median for college Freshmen in both speed and comprehension. One case was a slow reader, another low in comprehension. All but one student were above the median in arithmetic for the high group. The number of personal problems was fairly low.

ALTHOUGH final conclusions cannot be drawn from the limited data provided by one class, the results of this study suggest two propositions which may well receive further attention in guidance.

1. Those who will do poorly in their first quarter may do so at least partly, first, because they are poor in the use of the tool subjects—either slow in reading or low in understanding, or both, and lacking in the arithmetical competence needed if the program includes subjects, such as chemistry, where this is fundamental; and, second, because they have many or serious personal problems.
2. Those who will do very well are most likely to have control over these tool subjects or are capable of acquiring it to some degree under their own power or of effectively compensating for their limitations by spending extra hours in study. They may have no serious problems; but, if they have, they will be able to take them in their stride or do something about them.

What, then, does the teacher or adviser need to recognize about students as he works with them? This study helps to give new importance to several points. If he finds that the student is a slow reader but better than average in understanding what he reads, then the adviser will know that, while this student will probably have great difficulty in keeping up with college assignments, progress will be possible if he devotes more hours to study than most students do. Remedial teaching to increase reading rate might well make this extra study time unnecessary. If, however, the adviser finds that his slow reader is also low

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The Yearbook on Mass Media

By EDGAR DALE

THE writer of this paper served as chairman of the committee[1] in charge of the production of the *Fifty-Third Yearbook of the National Society for the Study of Education, Part II: Mass Media and Education.*[2] One of our first steps was to determine a suitable approach to this complicated problem. There are several approaches that a yearbook might make to the topic of the mass media. We could have discussed how to use the mass media as an instrument of teaching in the schools. This approach had already been used in the forty-eighth yearbook, entitled *Audio-Visual Materials of Instruction.* Nor did we try to give guidance in ways of producing films or radio or television programs. Our aim was to show the relevancy of the modern mass media to the public as a whole and to discuss the mass media in the total process of communication. The *Yearbook* aimed specifically at answering these big questions: What are the mass media? How do they work? What effects do they have? What should citizens, teachers, college instructors and administrators, and parents do about them?

We defined "mass media" as

> those instruments of communication which can convey identical messages to large numbers of persons who are often physically separated. The identical messages may be printed, as in newspapers, books, pamphlets, comics, and magazines. They may be on film, as in filmstrips and motion pictures. The mass media also include television, radio, and recordings (page 1).

This definition leads to some critical questions. What is the social effect of so many identical messages going to such large numbers of people? Such issues as Who is speaking? To how many people? With what effects? and With what opportunities to reply? are critical for all of us.

At one time, much of the communication in this country was "personal" in the sense that the work of a community was usually conducted on a face-to-face relationship. You bought your goods from the owner of the store or you knew him. The

[1] The other members of the Committee were Wilbur Schramm, University of Illinois; I. Keith Tyler, Ohio State University; and Paul A. Witty, Northwestern University.

[2] Chicago: University of Chicago Press, 1954.

small and physically limited circulation of newspapers or pamphlets made it possible for many persons to speak through the press and to be answered directly by their friends and neighbors.

Today, however, much of our communication is second-hand. Our ideas of reality are often based on what is reported to us by someone else, not gained directly. We must depend upon the reporter's eyes and ears to get sound ideas of what the world is like. If these reporters are not trained to see and hear well—if they look at life with a distorted view—or if the owners of the mass media refuse to offer a wide range of competent reports, then most of us will have distorted views of what the world is like.

WE TRIED to make clear in the *Yearbook* that our discussion of the mass media did not mean media for the masses. Yet putting people constantly in the rôle of receivers of data and opinions from the mass media, rarely as producers of such material and rarely in a position to answer back, may indeed develop mass-minded people. They do not know what to think until they read their columnists or listen to their commentators.

Under these circumstances, the question of who has the right to speak and under what circumstances becomes very important. The *Yearbook* points out that the official ideas of who can speak through the press have had a varied history. In the early history of the British press, we find the theory expressed that the press should be licensed under the authority of the Crown. Under Marxist theory, it is assumed that the press is owned by the government. Libertarian theory expresses many of our present-day concepts regarding the press—free flow of ideas, competition of ideas in the marketplace, free enterprise in ideas.

The *Yearbook* points out, however, that

> the concept of libertarian theory as meaning protection of a medium from the tyranny of government has developed into a concern for protecting listeners and viewers in their right of access to all important points of view, with a government agency made responsible by Congress for ensuring that stations thus operate in the public interest (page 109).

The *Yearbook* makes clear the problems involved in safeguarding the rights of the reader, the viewer, the listener. One

example is the high cost of producing newspapers, films, television programs. What opportunity does the individual have to speak through the press of his city, especially when over 90 per cent of all cities have no competing newspapers? Ten entire states have no local competition whatever. All of us are quite familiar with the limited number of television channels available for public use. Even a preliminary investment in an ultrahigh-frequency educational station may cost a half-million dollars or more.

Do those who control the messages sent over the mass media control the thinking of the consumers of these media? It is not so simple as this. The message, of course, is important. But the *Yearbook* notes three other factors which will influence the response: the situation in which the communication is received, the personal state and needs of the receiver of the communication, and his group relationships and standards.

We must realize, further, that since the mass media produce far more messages than any individual can select, the chances that a particular message will reach a particular person are small. If he does see it, he may not read or listen to much of it. If he understands it, he may not believe it. If he believes it, he may not act on it.

Nevertheless, if the mass media hammer away, day after day, on certain common messages, without any counterreaction, we may expect a slow change in the direction of the message.

How can we improve the mass media—develop socially responsible producers and consumers? The *Yearbook* makes many suggestions. Briefly, they are as follows:

First, avoid the assumption that there is one big public for the mass media. Indeed, nearly all publics are minority publics. There are few items in a newspaper that are read by more than 50 per cent of its purchasers. Thus our publics are a group of minorities, only a few of which include as many as one-half of the adults of this country.

Second, see that socially mature magazines, movies, newspapers, and radio and television programs are read, viewed, and supported. The social maturity of the message needs to be matched with the social maturity of the receiver of the message.

Third, work for genuine competition of ideas in the marketplace. This can be a competition between newspapers or

between one medium and another. The safeguarding of real competition is important.

Fourth, the consumer must have a genuine and sympathetic understanding of the problems of the producers and distributors of the mass media.

Fifth, the consumer who wishes to improve the mass media must himself be a literate user of the mass media. Condemnation of the tawdry and meretricious requires an understanding and appreciation of the excellent. Many consumers seem to know what they do not want much better than what they do want.

Sixth, if the million teachers in this country were themselves discriminating readers, viewers, and listeners, we would have made a good start toward getting excellence in the mass media. If every teacher of English or social studies were to help his students to develop greater discrimination in the choice of motion pictures, television programs, and books, significant changes would be possible.

The *Yearbook* tells us that those who wish to improve the mass media "must forget all thought of quick-and-easy achievement" (page 277). ". . . to influence the mass media for the better is not easy, and disillusionment awaits the unrealistic. To hope for much and expect little, to value the little gained, to be imaginative and persistent—this is the correct approach" (page 285).

Try Group Work

By ORLO L. DERBY

MANY instructors, particularly in college, have neglected to do anything in the field of group work. They have been of the opinion that straight lectures, plus the textbook and assigned readings, provide all the elements necessary for a scholarly presentation of their subject. Others, who are proponents of group work, argue that group procedures provide indispensable training in planning and investigation. They believe that group work and committee assignments supply their students with the incentive to further research.

One of the topics in a course in methods and materials conducted by the writer in Teachers College at Brockport, New York, dealt with ways of promoting group work with elementary-school children. On the theory that the best way to learn anything is to do it oneself, he decided to divide the class into committees and study some problem of interest to the group. The students were allowed to choose the members of their own group and elect their own chairmen. In a general class session, eight or ten topics were suggested for possible research. We then discussed the responsibilities of group members and the procedure of electing committee chairmen. A secretary was also selected by each committee.

The next order of business was the selection of topics. Committees met in various sections of the classroom and decided on topics to investigate, while the instructor visited each group in turn and "sat in" on the meetings. He took notice of the beginning difficulties, and gave some attention to them during the next class session. At subsequent class sessions each group chairman reported on the topics which had been decided upon. In order to stabilize the groups and fix responsibilities, the list of topics and the members of each committee were distributed to all the students in the class. Many individual problems in committee work came to light, of which the following are examples:

1. What do you do with those who monopolize conversation?
2. How can each member feel that he is part of the committee?
3. How can you get all members of the committee to work?

Each committee decided when it could best present its topic in a group report; thus each group had a target date to meet. Part of each class session was given over to discussion of problems of general interest which had to be solved in order that work might continue. Then group meetings were held, with the instructor acting as consultant. As plans were made and carried out, enthusiasm began to increase. Extra sessions were held to discuss problems which had arisen. A few topics had to be changed after the students had found them to be too wide in scope to undertake with the resources at hand. For example, one group planned to make a house-to-house visit of all the homes in the community: when it became apparent that this plan was not feasible, it was narrowed to include a sampling of various sections of the community.

THE results were as follows. One group of six girls arranged for and made a trip to a school for deaf children in a large city. They were shown around the institution and, during the course of a three-hour visit, gained a considerable amount of respect for the time, patience, and money needed to educate one handicapped child. As one girl said, "I never knew there was so much to teaching a deaf child to talk."

Another group canvassed the community for interesting places which could be visited by elementary-school children in excursions correlated with their social-studies program. They brought back a list of fourteen places each of which at least one member had visited. (Incidentally, even the instructor was not aware that some of these existed!) They distributed an annotated list of these places pointing out the items of interest to be seen in each.

A third committee canvassed one hundred homes in the community and secured public reaction to the question, "Are modern schools too progressive?" They gained a rather liberal education as to the attitude of citizens toward the schools, revealed in such widely ranging comments as "they should whip children more today" and "children are taught too much reading and writing." Perhaps committee members gained an appreciation of community attitude here which it would have been difficult to get from books.

Another group visited a local supermarket and found an astonishing list of concepts of an arithmetical and geographical nature which could grow out of such a visit by school children. Members of this committee also interviewed a third-grade laboratory-school teacher and secured very valuable suggestions about making actual trips with school children.

LEST the results of this experiment in group work sound too impressive, it should be stated that one committee did not function with unqualified success. This group had started out to discover how democratic the procedures were in the laboratory school. Unfortunately, the project was not well planned, the chairman did not exercise the leadership required, and the visitations made were not focused upon any particular aspect of democratic behavior. This group did not make a report according to schedule but an eventual report was given in the

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Investigations of Teacher Supply and Demand Reported in 1953

By MARGARET A. VESEY AND EARL W. ANDERSON

THE supply and the demand for teachers continue in sharp imbalance—an imbalance which it seems impossible to counterpoise with qualified teachers in the near future. Walsh poignantly summarizes the seriousness of the situation in this way: "This cumulative deficit of qualified teachers stretches back a decade or more and seems *destined to worsen* as far as we can see into the future. It is like a creeping paralysis!" (58).

College and universities are producing fewer candidates for teaching. Declines in the 1953 groups of four year–trained candidates were approximately five and ten per cent greater than in the 1952 groups, for the elementary schools and the secondary schools, respectively. And it must be remembered that not all of those trained enter the teaching profession.

School enrollments have continued to increase and will go on expanding beyond the year 1960. Inflated enrollments are more critical in the elementary schools, but they have reached the junior high school and will affect the senior high school much too soon.

> . . . Each September for the next six years will find one million more youngsters crowding into the elementary schools than were present the preceding year. If the annual birth rate, which reached an all-time high of approximately four million in 1952, does not show a marked drop, the annual increase in the number of children of elementary school age will continue well beyond 1958.
>
> The high school age group, static for the last decade, showed its first modest upturn in 1952. By 1955 the increase will be pronounced; by 1960 the total enrollment in the high schools may be expected to be 50 per cent greater than in 1950 (41).

Just what these enrollment increases mean in terms of teacher demand has been forecast by the National Education Association:

> . . . The child population of today ensures that in the next five years over 30,000 additional teachers will be needed annually to properly care for the instruction of the additional pupils. The number of new positions needed probably will drop off in the two succeeding years (42).

While the figures on the national level seem gigantic, the effects at the state and local levels are of significant magnitude.

In September, 1953, California colleges and universities will supply two elementary teachers where seven are needed, and one secondary teacher where two are needed, for employment in California public schools (54).

Over a half million Florida children are threatened with severe educational handicaps because of a critical shortage of teachers. Our state institutions of higher learning are educating only a fraction of the annual replacement need. Florida institutions supplied this year only 25 per cent of the new teachers employed in the state (1).

There are approximately 10,000 elementary teachers in training in the colleges and universities of Illinois. This figure includes those in the freshman, sophomore, junior and senior years combined. If Chicago gets its proportionate share of these teachers in relation to its population as compared with the balance of the state, that number of teachers will only meet one-half of our needs. What the situation will be with respect to the supply of high school teachers five years from now, no one can say for sure (11).

The American public is being made aware of these serious matters by intensive publicity which has been disseminated through the various media of mass communication.

. . . The fact that, even though the campaign has been under way for at least the last six years, the problem is still acute suggests that the publicity must be continued and greatly intensified. Certainly, the United States is wealthy enough to provide not merely adequate but excellent schooling for all the children of the nation. Moreover, a basic principle of American education is that it is ultimately the responsibility of the people themselves. Surely, then, when they have been made sufficiently aware of these shortages, the people will prove themselves willing to provide the funds necessary to remedy the conditions (26).

NUMEROUS studies of teacher supply and demand have been made in the past year. Maul again supervised the sixth in the annual series of national studies of supply and demand in the United States sponsored by the Research Division of the National Education Association (41). He also conducted ten related studies stemming from this main investigation (28–37). Goetch reported trends based on information collected from 45 institutional teacher-placement bureaus and 30 state departments representing five geographical areas (15). Stone reported the facts revealed by the fifth annual supply and demand study of certificated personnel in California made by

the Division of State Colleges and Teacher Education (54). Bowers presented his seventeenth statistical summary of teacher supply and demand in Ohio (4). The New Jersey Department of Education conducted its annual study (44). A publication of the Bureau of Statistical Services, New York State Education Department, offered information on projected school population and teachers (45). Travers made a study of teacher needs in the senior high schools of New York City for the seven years 1955–62 (57). Orleans and Chan estimated teacher-education-enrollment needs of the four municipal colleges of New York City for 1953–61 (47). Welte and others reported Connecticut's need for teachers through the year 1964 (60). Ruebel carried on the annual study of teacher supply and demand for Wyoming (50). Information about opportunities in teaching was presented by placement officers at Indiana University, Ball State Teachers College, and Northern Illinois State Teachers College (21, 2, 46). Excerpts and data covering pertinent statistics from some of the studies are presented in the following paragraphs.

THE Research Division of the National Education Association reports a decline in the 1953 production of candidates for elementary- and secondary-school teaching. The current college graduating class will supply 35,636 qualified elementary-school and 55,468 high-school candidates—declines of 5.35 per cent and 9.82 per cent, respectively, from the 1952 groups. Such declines are critical in view of the fact that a number of this "supply" will not even enter candidacy for teaching: marriage will claim a large number of women; competition by business and industry for college graduates will deplete these ranks; military service will take large numbers of the male college graduates; and some of the graduates will continue with advanced studies. In addition, two-thirds of the group of qualified teachers are prepared for high-school teaching, although the greatest need will be at the elementary-school level (41).

Demand for teachers is more difficult to measure. The N.E.A. Research Division forecasts that

> because of increasing enrollments alone, the number of elementary school teachers will increase from about 650,000 in 1952–53 to about 780,000 teachers by 1959–60—a total increase of 130,000 in the teaching staff of the elementary schools. In high schools, the number

will need to increase from 335,000 teachers currently employed to approximately 420,000 by 1959–60 (42).

The figures given do not take into account the need to relieve overcrowding, to make up for the annual losses as the result of dropouts from the profession, and to replace the undertrained.

Goetch, in his study of supply and demand in 32 states, found the following to be true:

> All of the states representing the various areas have a present shortage of adequately qualified elementary teachers in the intermediate and primary grades. Most of the states in the western, central, and east central areas have an adequate supply of qualified teachers for the upper elementary grades. In these states secondary trained teachers are certificated to teach in the upper elementary grades and in the junior high school. Tennessee has an oversupply of both elementary and junior high school teachers.
>
> All of the states in the various geographical areas have a critical teacher shortage for the one-room and two-room rural schools. With a few exceptions in certain special teaching fields [such] as home economics, physical education for girls, vocal and instrumental music, most of the states have an adequate supply of high school teachers. However, a shortage of well-qualified secondary teachers exists at present in nearly all of the southern area of states. A critical shortage of teachers still exists in such highly specialized fields as elementary supervisor, guidance, remedial reading, spastics, and speech correction (15).

The Indiana University Bureau of Educational Placement reported a 50–per cent greater demand for elementary-school teachers and a 22–per cent greater demand for secondary-school teachers than in the previous year. This placement office also reported that about 86 per cent of the elementary-education and 54 per cent of the secondary-education graduates of 1953 were teaching. Demand exceeded the supply for college positions in mathematics, physics, chemistry, economics, home economics, elementary education, and residence-hall counseling. College requests were low in relation to the number of candidates in music, men's physical education, history, guidance, personnel administration, educational psychology, and psychology. The demand for college teachers, however, increased 27 per cent over that of the 1951–52 period (21).

Laxson stated that there are 22,000 homemaking teachers in the United States at present. Resignations each year will number more than 7,000. An additional 3,900 teachers will be needed to staff departments now operating with one teacher

where two or three are needed. There is a further need for qualified homemaking teachers in the 6,000 high schools where no homemaking program is now in operation. Laxson's statistics show that marriage is the primary reason why home-economics graduates do not teach (23).

Maul reported the conditions in mathematics, science, social studies, business education, physical education, and music as follows:

. . . in 1953, the total number of college graduates had fallen 30.8 per cent, the total number meeting high-school certificate requirements had fallen 36.2 per cent, the total number prepared to teach mathematics had fallen 41.3 per cent, and the total number prepared to teach science had fallen 48.7 per cent (30).

. . . The 1950 group prepared to teach *social studies* numbered more than 15,000, while the anticipated production in 1953 will be only 8,375. This is a drop of fully 45 per cent (29).

. . . A short three years ago (1950) the all-time high was reached in total college graduates, the total number prepared for high school teaching, and the total number prepared to teach the business subjects. We know that the latter group of 7,235 was not burdensome . . .

All in all, these 7,235 potential new teachers of business subjects were easily absorbed by American occupational life. Since 1950 the number to come from colleges has fallen, first to 5,750 in 1951, then to 5,165 in 1952, and now the report for 1953 shows only 4,576! This is a drop of 37 per cent in three years. This [downward trend] is bound to extend further, because the present junior and sophomore college classes are the smallest in five years (32).

. . . The drop, from year to year, is drastic in the production of teachers of health and physical education, and particularly in the production of men qualified in this field . . . In the spring and summer of 1953 the colleges will produce only a total of 91,104 qualified candidates, of whom only 5,680, or 6.2 per cent, will be men with majors in this field. This is a drop of more than 46 per cent in three years!

. . . . . .

The production of qualified women teachers in this field, while on a smaller scale, has been at a more consistent pace. We must remember, however, that at no time have there been enough trained women to meet the demand. There has been a shortage ever since the subject was introduced into the curriculum . . . the women in this field have not at any time been three per cent of the total college graduates who meet certificate requirements in any one year (33).

. . . Encouragingly, the drop in potential new music teaching candidates is not so severe, but even here the decrease of 10.8 per cent comes at the very moment the need for increased numbers begins to be felt (37).

A NUMBER of the main causes for the continuation of the grave shortage of teachers have already been mentioned. Several investigators have enumerated other reasons for the shortage. Those most frequently named are the following:

Teachers' salaries are inadequate (18, 20, 22, 35, 52).
Working and living conditions for teachers are often unsatisfactory (18, 22, 35, 38).
The teaching profession has a lack of prestige or high public regard (18, 22).
The guidance and selective recruitment programs for prospective teachers are ineffective (18, 22).

Trump listed the two fundamental causes of the teacher shortage as "cash" and "frustration" (20). Starkey and others analyzed the salary and economic status of teachers in New Jersey, and one of the most significant facts brought to light was that the New Jersey teachers were the only group, of nine major income groups and seventeen trade groups studied, whose average salary did not keep pace with the increase in the cost of living (52).

Nelson and Tyler discovered data which seemed to indicate that counseling played an important rôle in the choice of grade-level of prospective Virginia teachers. Their findings revealed that the choice of teaching level was most frequently made during the college years (43).

The National Citizens Commission for the Public Schools has suggested that new and higher standards of the profession have played some part in the shortage of regularly certificated teachers. Pupil-teacher ratios are smaller than they were twenty years ago. Licensing standards have changed. Today, many states require at least college graduation for all their teachers. The trend has been toward longer periods of training (18). This is not to suggest that the panacea for the teacher shortage is to lower standards, because these higher requirements raise the level of the profession.

NUMEROUS investigators have made suggestions for the improvement of the situation. Their recommendations follow:

1. There should be selective teacher-recruitment programs that would encourage desirable candidates and would redirect those who do not show promise of becoming good teachers into occupations for which they are better fitted. Recruitment should begin in the elementary school or junior high school and continue through the college years (3, 9, 22, 43, 48, 50, 53, 55, 58, 60).

2. More studies of teacher recruitment, teacher supply and demand, and teacher reserves should be conducted at national, state, and local levels (7, 9, 18, 35, 48).
3. Wise counseling and guidance programs should be provided for prospective teachers and teachers in training (7, 9, 22, 43, 48).
4. Future Teachers of America clubs and chapters should be encouraged in high schools and teacher-education institutions (7, 9, 22, 50).
5. Teachers' salaries should be generally raised (9, 17, 19, 20, 22, 50, 51, 52, 53, 55, 58, 61).
6. States should adopt reciprocal programs of teacher certification to expedite the free flow of qualified teachers (9, 18, 55).
7. There should be more flexibility in teacher-education programs, experimentation with the common professional core, and preparation for secondary-school teaching in more than one field (9, 18, 55).
8. Schools and communities should provide satisfactory working and living conditions for teachers (7, 9, 18, 20, 50, 53, 55).
9. An intensified program in public relations is needed to alert communities to their responsibilities in the field of education (7, 9, 18, 22, 26, 48, 50, 55, 60).
10. Teacher-education scholarships, or some other means of attracting adequate numbers of capable and worthy students into teacher preparation, should be provided (7, 9, 18, 22, 48, 50, 55).
11. Research studies should be made to determine why teachers enter the profession, why teachers leave the profession, and what constitutes a "good" teacher (7, 9, 17).
12. Ways should be found for making better use of qualified teachers' time (8, 9, 10, 18, 26, 55).

Among the ways of making better use of teacher time is to relieve the teacher of routine clerical tasks, such as keeping attendance records, and of certain disciplinary responsibilities, such as supervising study halls and lunchrooms. Subprofessional personnel can assume responsibilities of this kind. More ambitious use can also be made of student assistants. Films and television offer an opportunity for relieving the teacher of some work in classroom instruction so that he is freer to spend more time with individual pupils. Teacher teams composed of master teachers and professional assistants might make it possible for the same number of teachers to handle a greater number of students and even improve the quality of instruction (10).

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EDITORIAL COMMENT

Inter-university Co-operation

THE April issue of *Ohio Schools* contains a brief but noteworthy article by Lowry B. Karnes, chairman of the Department of Geography of Bowling Green State University, on the Ohio Conservation Laboratory.[1] The Laboratory was one of the earliest outdoor workshops in conservation education; it will hold its fifteenth session this summer. Since its inception in 1940, many similar programs have been put into operation throughout the country. It is doubtful, however, whether any other conservation-education workshop has had as widespread and diverse sponsorship and support as the Ohio Conservation Laboratory now enjoys. Hence Mr. Karnes, in both the title and the text of his article, properly emphasizes the fact that the program of the Laboratory is made possible by the co-operation of many organizations and agencies —the five state universities, two departments of the state government, and a large number of private organizations.

The widespread participation of so many different groups gives this educational enterprise a significance far beyond the field of conservation education. Particularly noteworthy is the co-operation of the five state universities; the present discussion is concerned with this phase of the co-operation.

During its first thirteen years, the Laboratory was conducted by Ohio State University with the co-operation of the State Department of Education and the Division of Wildlife of the State Department of Natural Resources, but without the participation of any other university. This is no longer true. Under the plan now in operation, each of the five state universities lists in its summer-session offerings a course that may be taken at the Laboratory. A student who wishes to attend the Laboratory registers for the appropriate course in his own institution and pays its regular registration fee. The students from the different universities are taught together, the mark of each being reported to the proper registrar. An Inter-

[1] "A Co-operative Adventure in Conservation Education," *Ohio Schools*, XXXII (April, 1954), p. 36.

institutional Co-ordinating Committee of five members, one appointed by the dean of the College of Education of each institution, acts as an advisory body to the Laboratory staff and the administrative officers of the five universities. The various institutions share the cost of providing instruction. In these ways they work closely together in meeting an educational need that all recognize.

We have heard a great deal in recent years about the need for co-operation among educational institutions. Everybody agrees that this is a fine idea, just as everyone is against sin. The actual practice of co-operation lags far behind its acceptance in theory. One of the reasons seems to be the belief that co-operation must be a large-scale affair; that institutions have first to work out a broad general policy and plan of co-operation before any specific co-operative programs can be initiated. This idea is disproved by the facts of everyday experience. Many groups and agencies—families, churches, civic organizations, schools, and so on—find it possible and desirable to co-operate in specific projects without reaching agreement as to ultimate objectives or general plans of operation. In spite of the fact that in some cases they have irreconcilable differences with respect to basic philosophies and long-range objectives, they co-operate effectively in particular projects. As they gain experience and confidence, they are likely to find additional projects on which they can work together. Co-operation is much more likely to proceed from the specific to the general than from the general to the specific.

It is to be hoped that, in serving the cause of public education in Ohio, the Colleges of Education of the five state universities may find more and more projects on which they can work closely together.

R. H. E.

Forecasting the Academic Achievement of College Freshmen

[*Continued from page 121*]

in comprehension, more study time alone will not help. Remedial work in a clinic or psychology course set up for the purpose is definitely called for. One must be prepared, however, for the fact that this is not always a corrective. If one finds the student to be a rapid reader and also high in comprehension, then he has no problem. But if understanding is low, again remedial teaching is suggested.

If the teacher discovers that a student is low in some of the fundamental arithmetic processes or has little "problem sense," he can be assured that there is a serious question as to whether creditable work can be expected in such a subject as chemistry, unless this handicap is removed.

If he finds that the student has many or serious personal problems, real or imaginary, he will recognize them as a potential handicap in the learning process. He will know that here wise counseling can definitely help, and he will be alert to all possibilities for referral to specialized guidance services on his campus.

Try Group Work

[*Continued from page 127*]

form of a panel discussion. Was the group experience wasted in terms of learning outcomes? Not according to the group—even the chairman learned some of the requisites of leadership by default.

We might go on and list the learning outcomes achieved, but suffice it to say that the groups learned group work by doing group work. In fact, they learned it so well that they did two other assignments on social-studies procedures and on science experiences by group methods.

Moreover, the instructor was well pleased with the results. Not only did the students gain some independence and show some initiative and responsibility in carrying out their projects, but there was a conspicuous absence of the boredom which is induced by too much lecturing by the instructor and too little absorption of knowledge by the undergraduates. Try it and see!